GROUP 42

BODY

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GENERAL INFORMATION

M2420000100842

FEATURES

WEIGHT REDUCTION AND HIGH RIGIDITY

- Application ranges of high tension steel plate, antirust steel plate, and uneven thickness steel plate have been expanded.
- The upper frame outer and front pillar connection has been strengthened by adopting the upper frame-to-front pillar brace.
- The radius of each opening corner for the doors and tailgate has been enlarged.
- Cowl top lower panel and spring house panel are directly joined for higher rigidity.
- Strut tower bar has been adopted <4G1>.
- A front suspension axle side plate has been adopted <4G1>.
- The air outlet garnish has been installed to the hood, improving the sporty image and cooling efficiency in the engine compartment. <4G1>

REDUCTION OF VIBRATION, NOISE, AND AERODYNAMIC NOISE

- Straight frame structure has been adopted.
- Curved front floor and uneven thickness steel plate have been adopted.
- Rigidity of the suspension installation part has been improved.

IMPROVEMENTS IN SAFETY

- RISE (Reinforced Impact Safety Evolution) has been used for the main body.
- Features a side door beam to boost safety upon side impact.
- Direct combination key cylinder and inside lock cables for the front doors have been adopted to improve safety upon impact.

IMPROVEMENTS IN OPERATION QUALITY

- The central door locking system, which locks/unlocks all the doors and the tailgate, is adopted.
- "P" position shift linked door-unlock function has been introduced to the central door locking system(F1C1A).

IMPROVEMENTS OF PRODUCT PACKAGE AND APPEARANCE

- Rigidity of door sash bottom section has been improved.
- By improving the engaging sound between the door latch and striker, the door locking sound quality has been enhanced.
- UV & heat protect glass has been used for the windshield.
- UV-reducing glass has been used for the front door window glasses and rear door window glasses.
- Privacy glasses have been used for rear door window glasses, quarter window glasses, and tailgate window glass (Option).
- Multi-mode keyless entry system (with door mirror retraction/return control function) has been adopted.
- Protector film has been attached on side sill <Vehicles without side air dam>.
- Sunroof has been installed (Option).

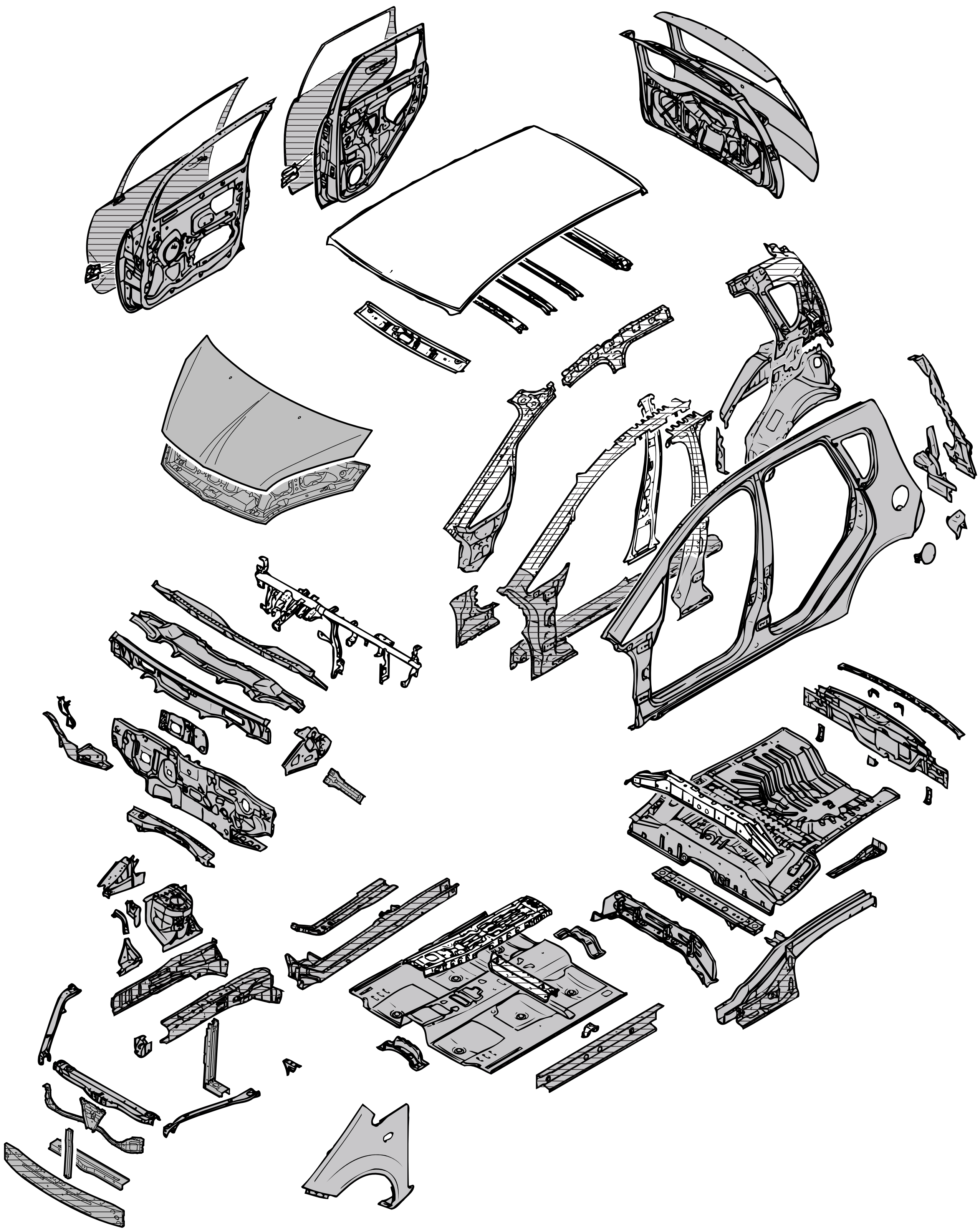
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MAIN BODY

BODY PANELING

M2420002000636



: Anti-corrosion steel panels
: High-tensile steel panels

AB400640AD

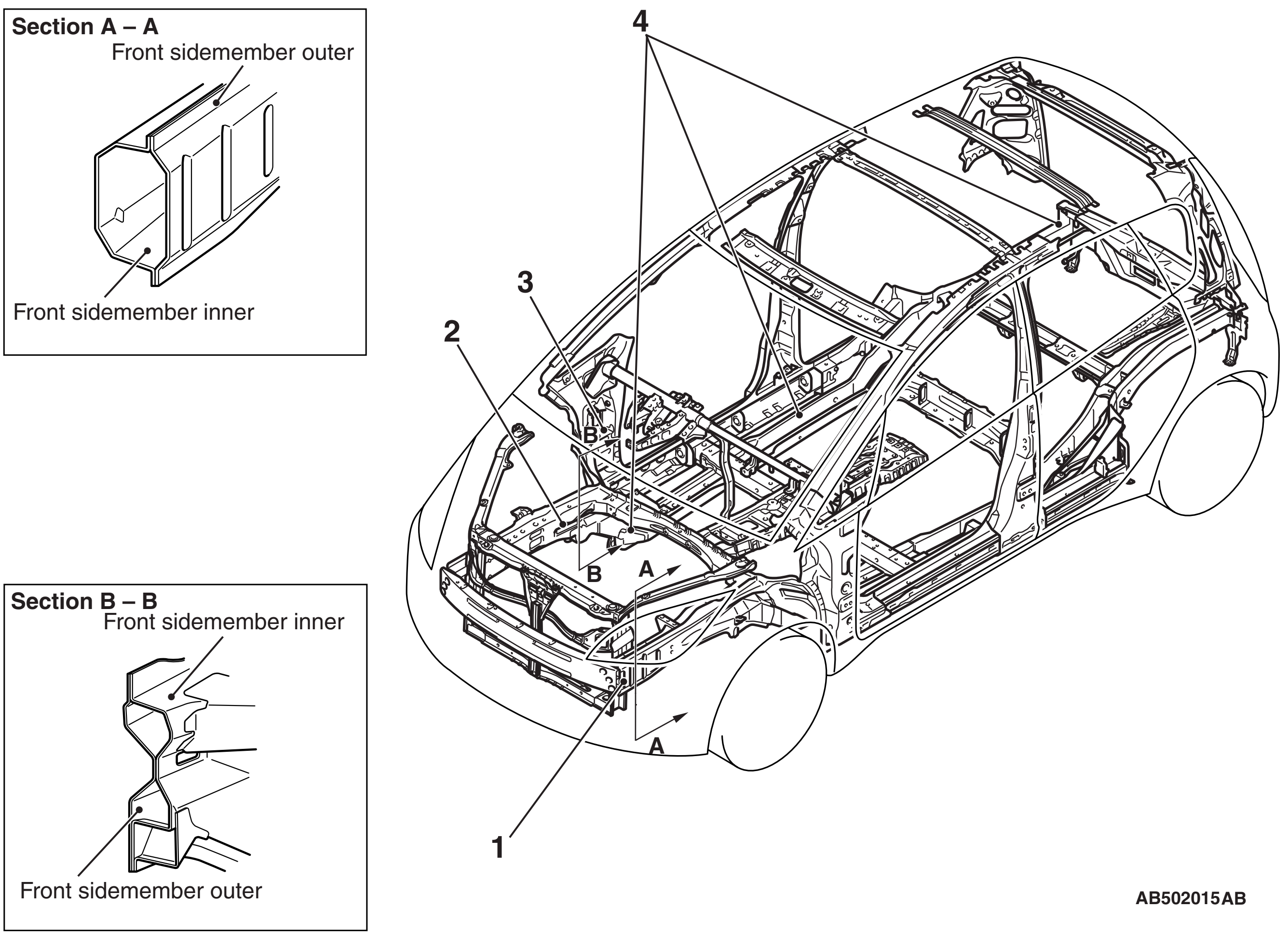
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- RISE (Reinforced Impact Safety Evolution) has been adopted for the main body in order to ensure all-round impact safety at high level.
- The use range of rust-resistant steel plates has been expanded and high strength steel plates have been optimally arranged. In addition, rust-resistant steel plates are adopted for items such as the hood, doors, inner panels of tailgate, and reinforcements in order to improve the rust resistance of the main body and to reduce its weight.
- Sealer has been applied to the entire folded area of the flanges for the doors, hood, and tailgate in order to improve rust resistance.

BODY SHELL

M2420003000651

IMPACT SAFETY BODY RISE (REINFORCED IMPACT SAFETY EVOLUTION)



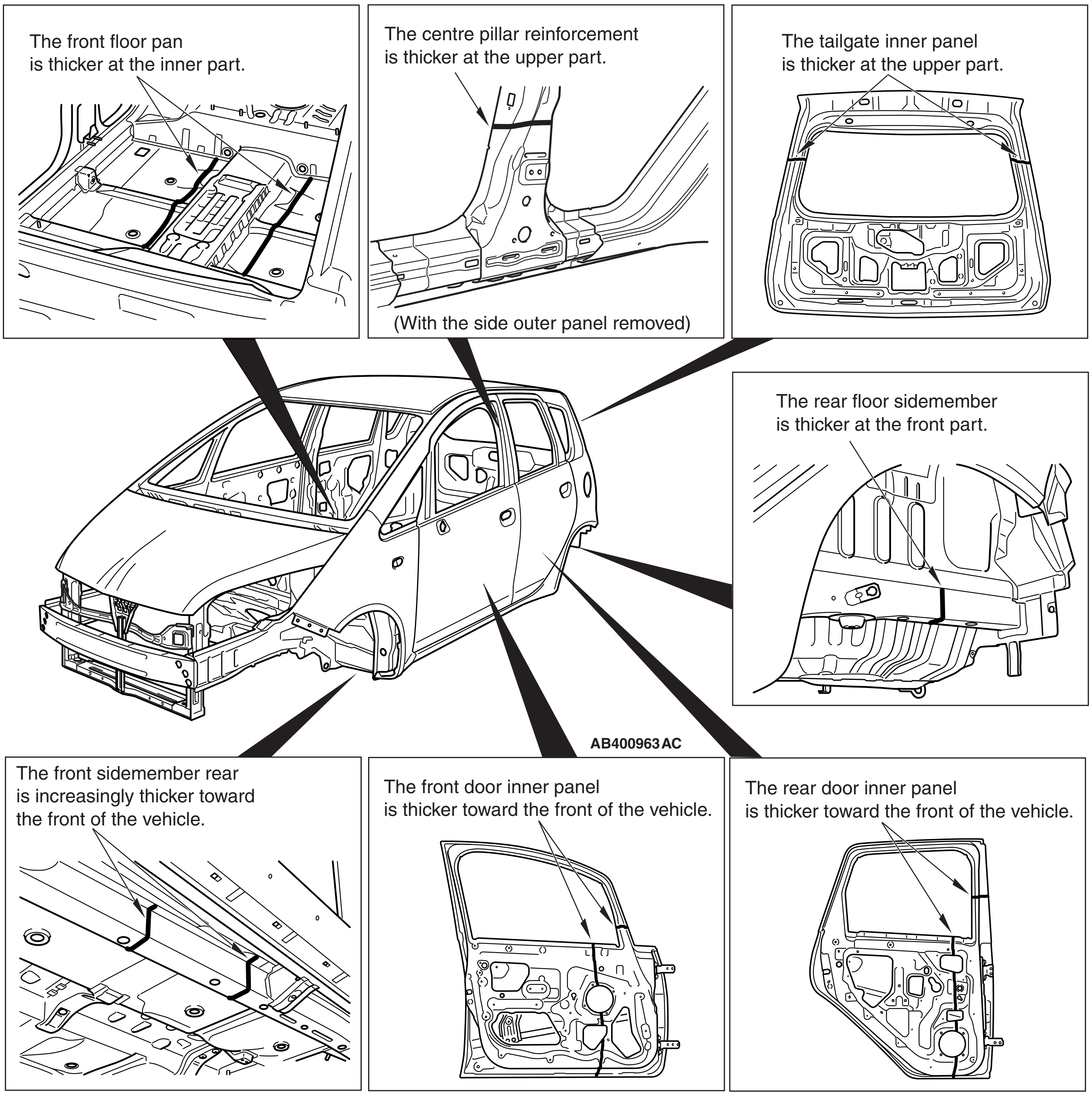
The front and rear structures to absorb high energy, and the highly tough cabin structure reduce the risk of passenger injuries at front-, rear-, and side-impact collisions, secure the space for life protection, and facilitate rescuing passengers. The structures also have the following features:

1. The front side of the front sidemember, for which octagonal section structure is adopted, has been enlarged for improved rigidity.
2. The rear side of the front sidemember, for which 8-shape cross section structure is adopted, has been enlarged for improved rigidity.

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3. The dash side brace has been manufactured as an unit in order to strengthen the joint between the front sidemember and the front pillar, increasing the rigidity of the entire body.
4. The installation position of the steering gearbox has been lowered, and the sidemember from the front to the rear has been straightened in order to improve rigidity of the entire body.

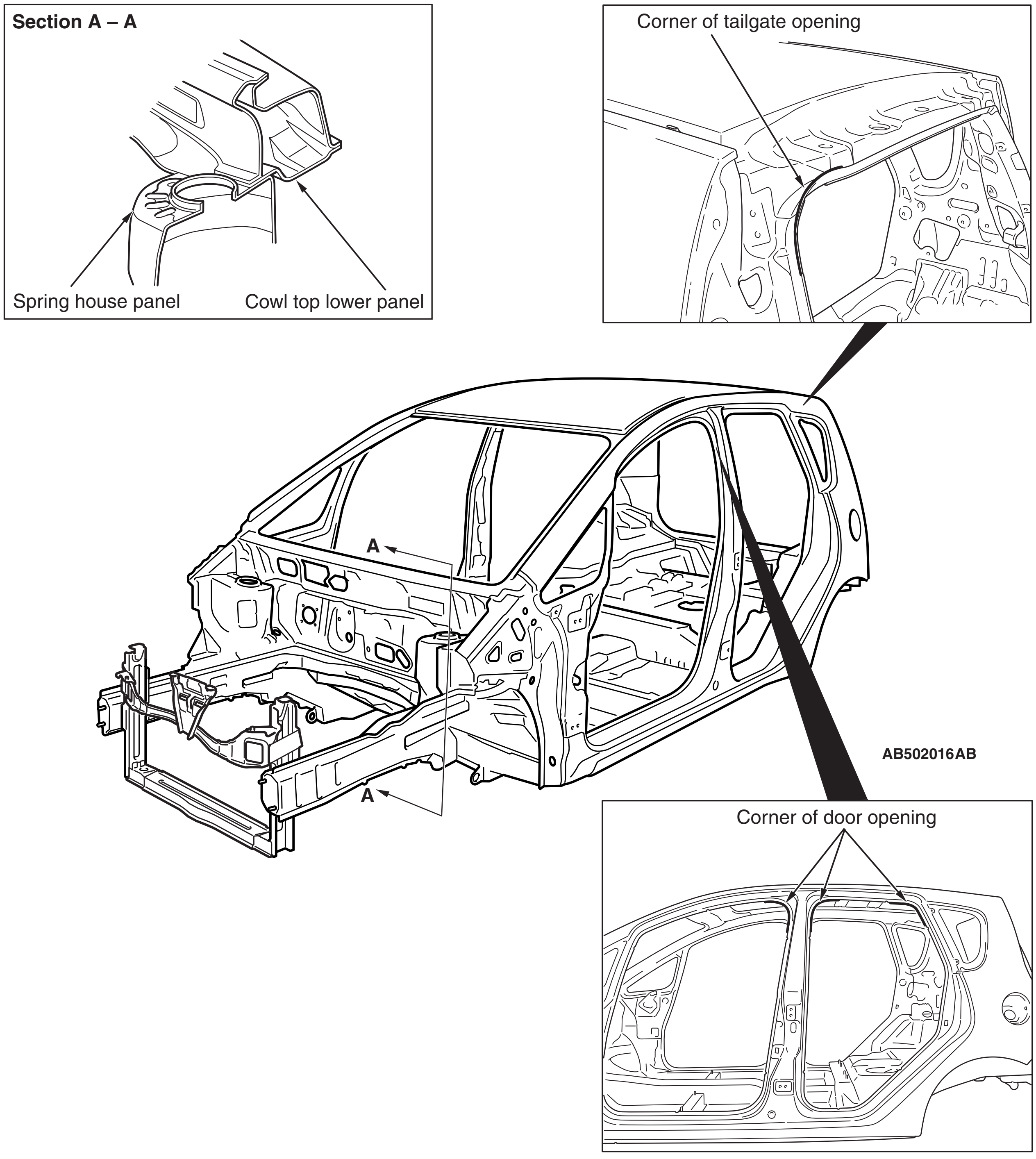
UNEVEN THICKNESS STEEL PLATE



Uneven thickness steel plate* with integrated uneven thickness structure has been adopted for improved safety upon impact and reduced weight.

*NOTE: *: Steel plates with different thickness welded together to make one steel plate.*

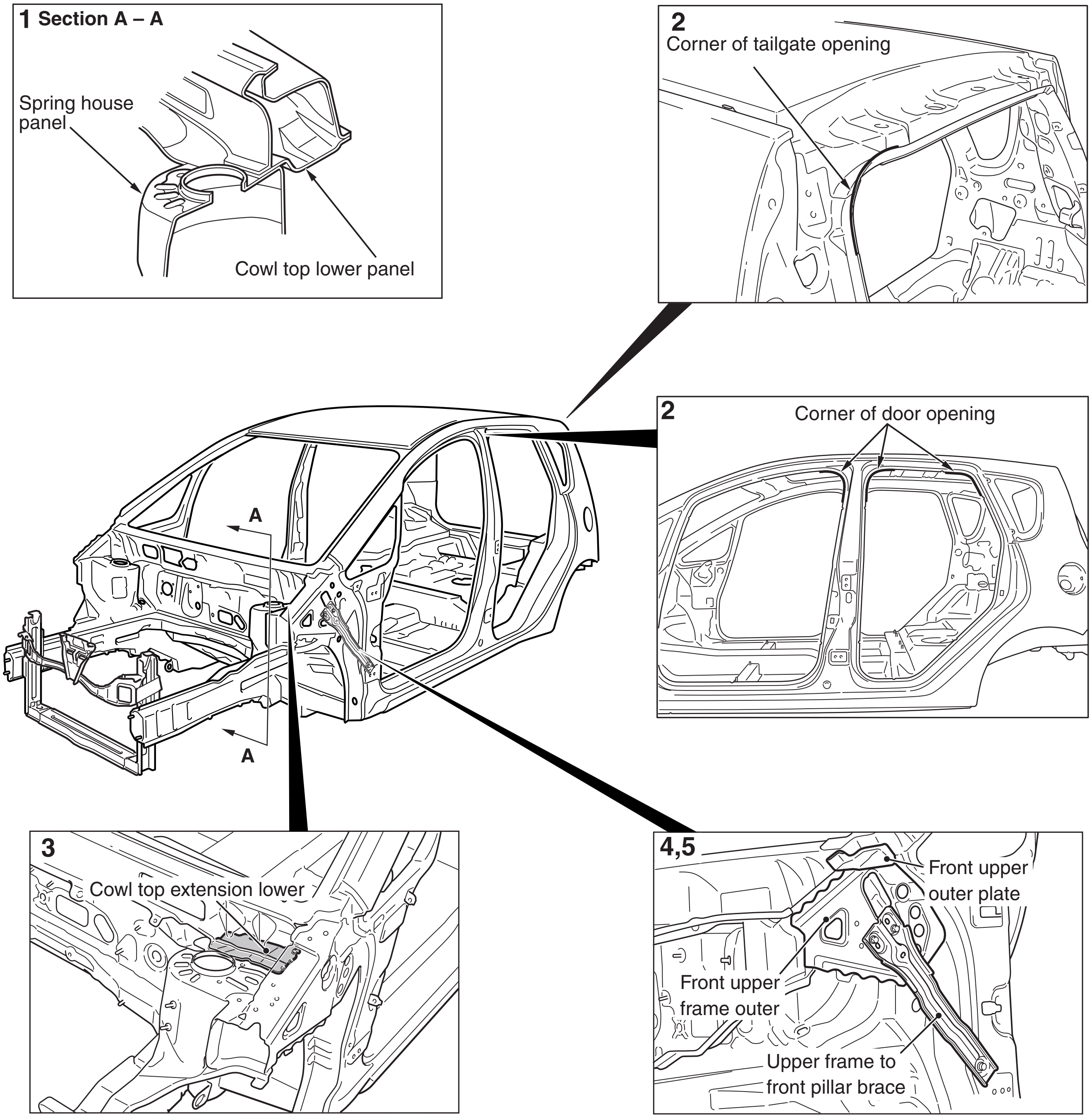
DRIVING STABILITY



1. The cowl top lower panel and the spring house panel have been directly installed, and the rigidity of the front suspension installation area has been increased, in order to improve driving stability.
2. In order to improve handling stability, the radius of the opening corners for the door and tailgate has been enlarged to driving rigidity of the frame connections.

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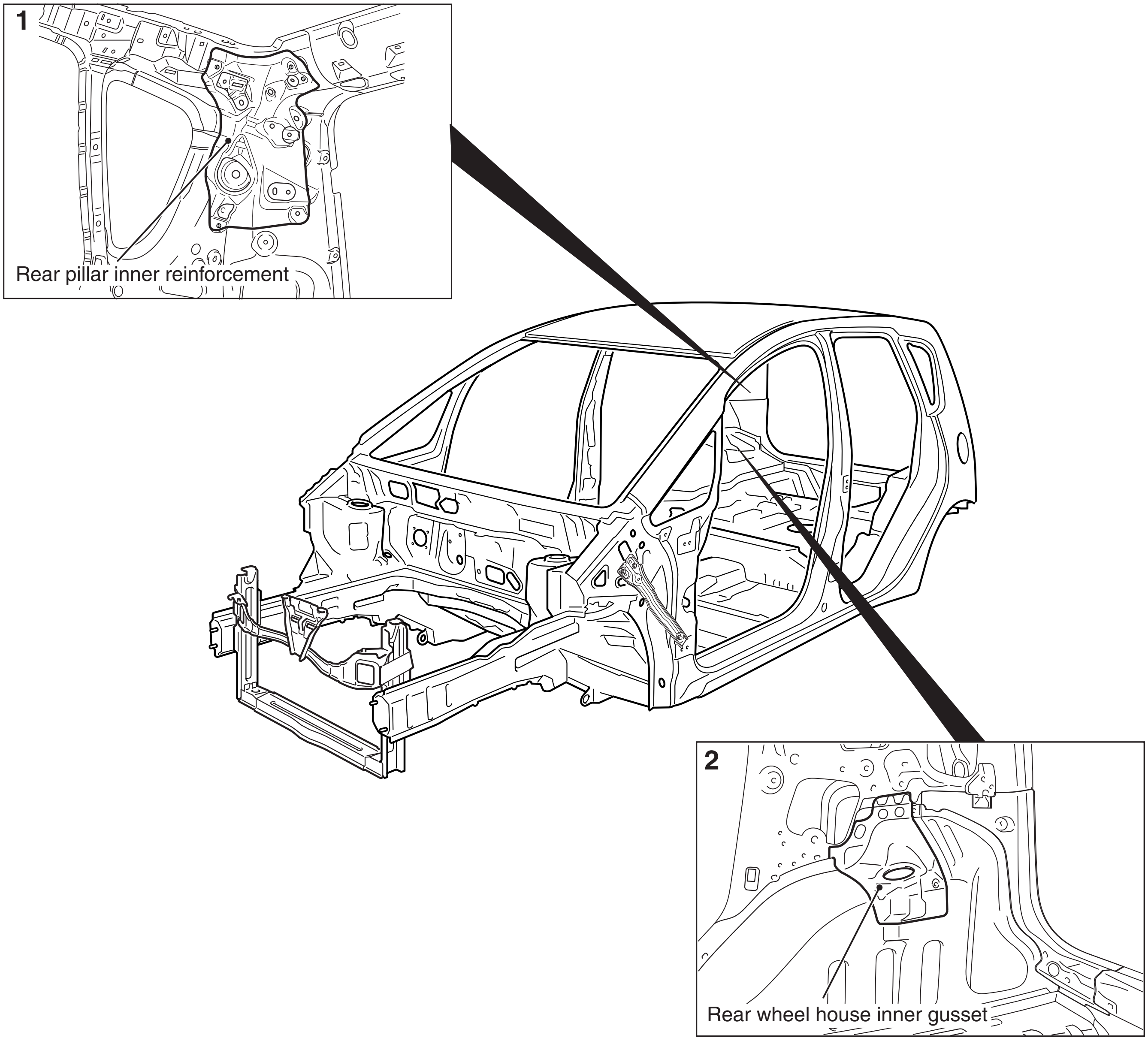
DRIVING STABILITY



1. The cowl top lower panel and the spring house panel have been directly installed, and the rigidity of the front suspension installation area has been increased, in order to improve handling stability.
2. In order to improve handling stability, the radius of the opening corners for the door and tailgate has been enlarged to increase rigidity of the frame connections.
3. The cowl top extension lower has been added to the cowl top panel and directly secured to the spring house panel. This improves rigidity at the suspension mountings.
4. Driving stability has been improved by joining the front upper frame outer and the front pillar by the upper frame-to-front pillar brace.(RALLIART Version-R)
5. Rigidity has been improved at the suspension mountings by joining the front upper frame outer and the cowl top lower panel by the thicker front upper outer plate.

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<COLT RALLIART Version-R>



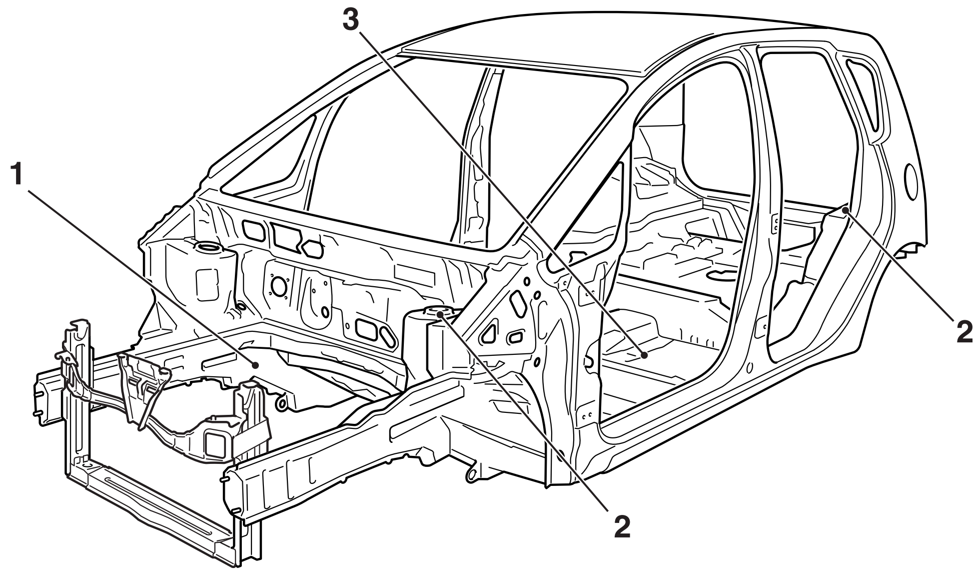
COLT RALLIART Version-R has the strengthened points as follows.

1. The rear pillar inner reinforcement has been added to improve torsional rigidity of the body.
2. The rear wheel house inner gusset has been added to improve rear suspension installation rigidity.
3. The side outer panel, cowl top outer panel, and rear end inner panel have been thickened to improve the rigidity of suspension installation and body.
4. The number of spot welding points on the body opening has been increased by 1.5 times of the conventional number to improve the rigidity of the entire body.

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QUIETNESS

M2420004000416



1. The side members have been straightened from the front to the rear in order to reduce vibrations.
2. The cowl top lower panel and the spring house panel of the front suspension have been directly installed, and an absorber reinforcement has been adopted for the rear suspension. Consequently, rigidity of the suspension installation area is increased, and incoming road noise is reduced.
3. The front floor pan has been curved to suppress vibration and noise.

BODY COLOUR CHARTS

M2420005001207

Colour	Colour code	Colour number	Colour name (Previous name)	Composition of film
WARM SILVER	A17	CMA10017	Warm Silver Metallic	Metallic
SILVER	A19	CMA10019	Cool Silver Metallic	Metallic
DARK GREY	A72	CMA10072	Dark Bluish Mica	Pearl
PALE BLUE	T68	CMT10068	Pale Blue Metallic	Metallic
PALE GREEN	F07	CMF10007	Pale Green Mica	Pearl
BLACK	X24	CMX10024	Black Mica (Pyrenees Black)	Pearl
WHITE	W23	CMW10023	White Pearl	Pearl
WHITE	W32	AC11032	White Solid (Fairy White)	Solid
RED	P26	CMP10026	Red Metallic	Metallic
YELLOW	Y05	CMY10005	Light Yellow Pearl	Pearl

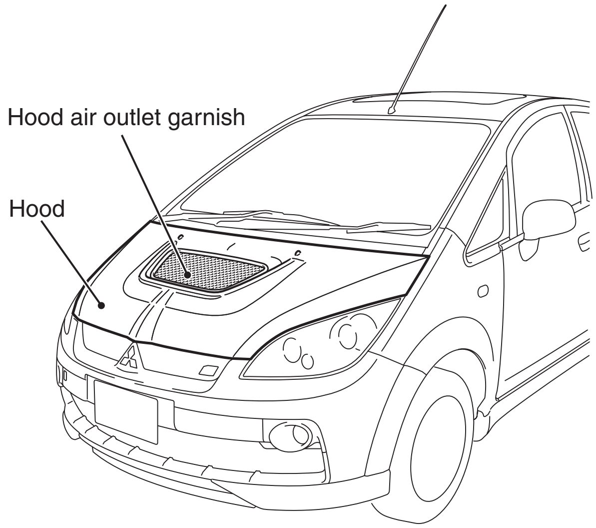
NOTE: For painting, inner panel colours should be similar to the outer panel colours.

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HOOD <4G1>

M2420023000404

<RALLIART Version-R>



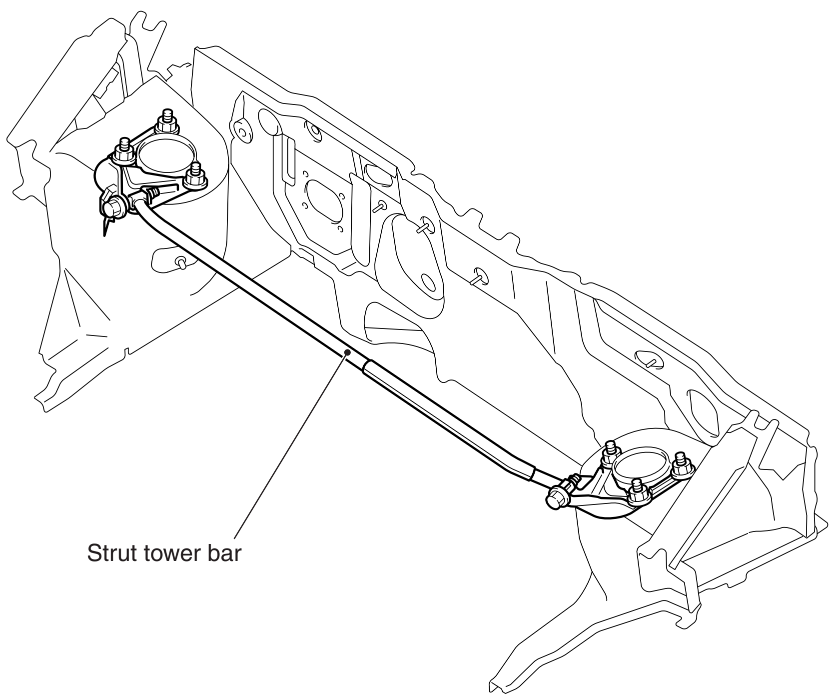
AC601510 AB

The air outlet garnish has been installed to the hood, improving the sporty image and cooling efficiency in the engine compartment.<RALLIART Version-R>

STRUT TOWER BAR <4G1>

M2420001300140

CONSTRUCTION DIAGRAM



AC402435AB

A strut tower bar has been adopted to the strut attachment point to improve body rigidity.

DOOR

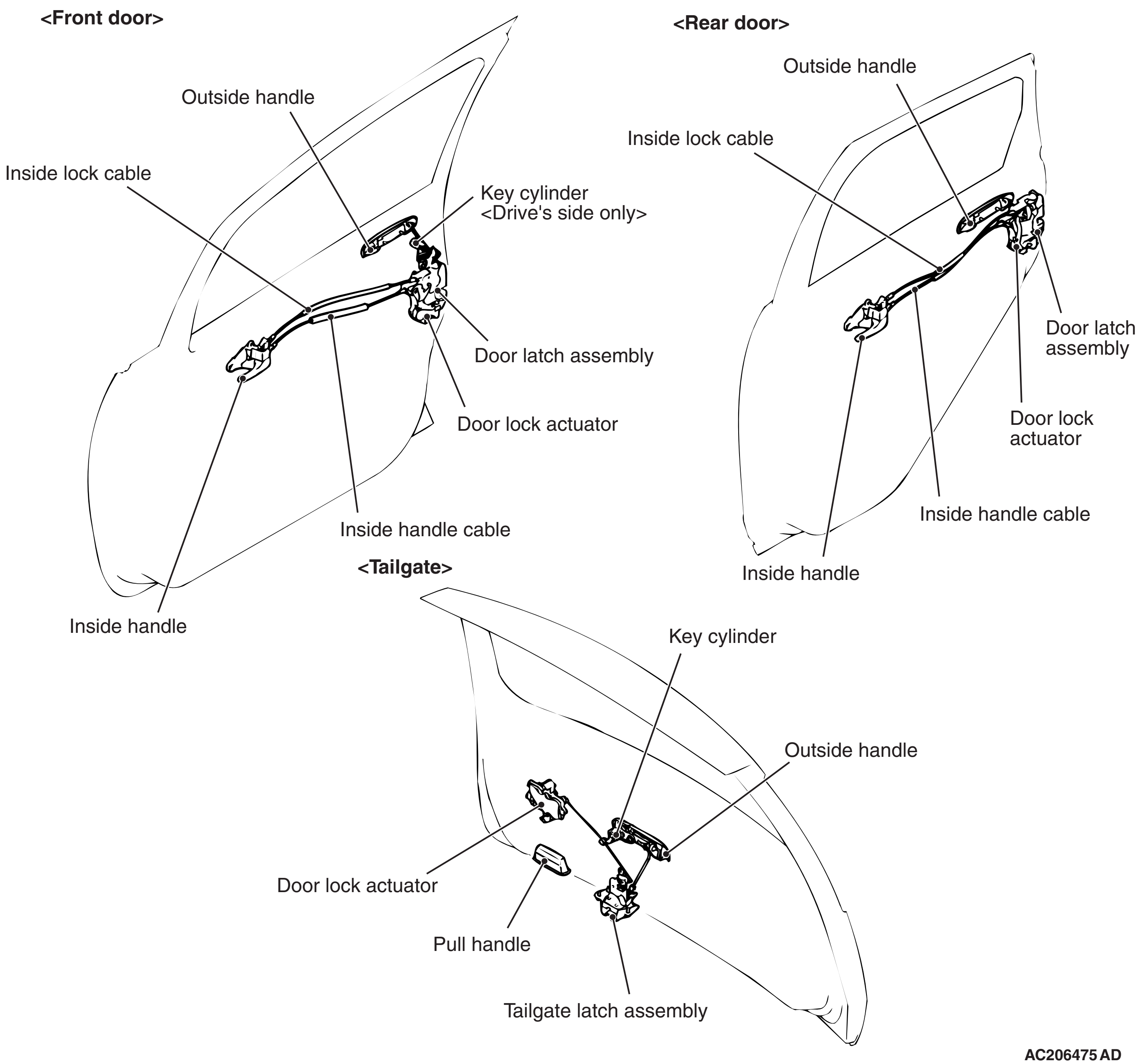
DOOR LOCK

M2420009000499

CENTRAL DOOR LOCKING

- Centre door locking system that locks and unlocks all doors (including tailgate) via the driver’s door key cylinder or the driver’s door inner lock knob has been adopted.
- A child protection is used to prevent the rear doors from being opened accidentally during driving.
- Key-in prevention function has been introduced for driver's door.
- "P" position shift linked door-unlock function has been introduced.
- Direct combination key cylinder mechanism has been adopted to maintain its function at the side impact and improve theft protection.

CONSTRUCTION DIAGRAM



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Group TOC

DESCRIPTION OF STRUCTURE AND OPERATION

CENTRAL DOOR LOCKING

- When the driver's door inner lock knob is operated to the lock position with all doors closed, all the doors (including tailgate) will lock.
- The driver's door can be opened by pulling the driver's door inner handle even when the driver's door inner lock knob is in the lock position. This function is called "Override function". All doors and tailgate can be unlocked at the same time that the driver's door is opened.

KEY-IN PREVENTION FUNCTION

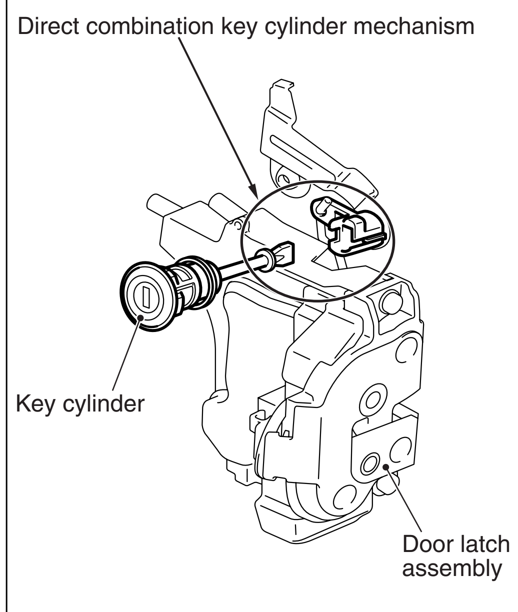
If the driver's door remained open, it cannot be locked even though the driver's door key cylinder or driver's side inside lock knob is pushed. This prevents the ignition key from being left in the passenger compartment.

"P" POSITION SHIFT LINKED DOOR-UNLOCK FUNCTION

When the selector lever is shifted to the "P" (parking) position, all the doors (including tailgate) will unlock, improving passengers' convenience during alighting. Using an adjustment function*, "P" position shift linked door-unlock function can be changed to "Active", or "Inactive". The initial setting at factory is "Inactive".

*NOTE: *: "P" position shift linked door-unlock function can be changed as a customise function. Refer to GROUP 54B, Customise Function P.54B-25.*

DIRECT COMBINATION KEY CYLINDER MECHANISM



When doors are unlocked, an impact of a side collision is not easily transmitted to the door latch structurally, improving door opening performance.

- Even if any door key cylinder is attempted to be tampered with the doors locked, the tampering force is not easily transmitted to the door latch to deter thieves.

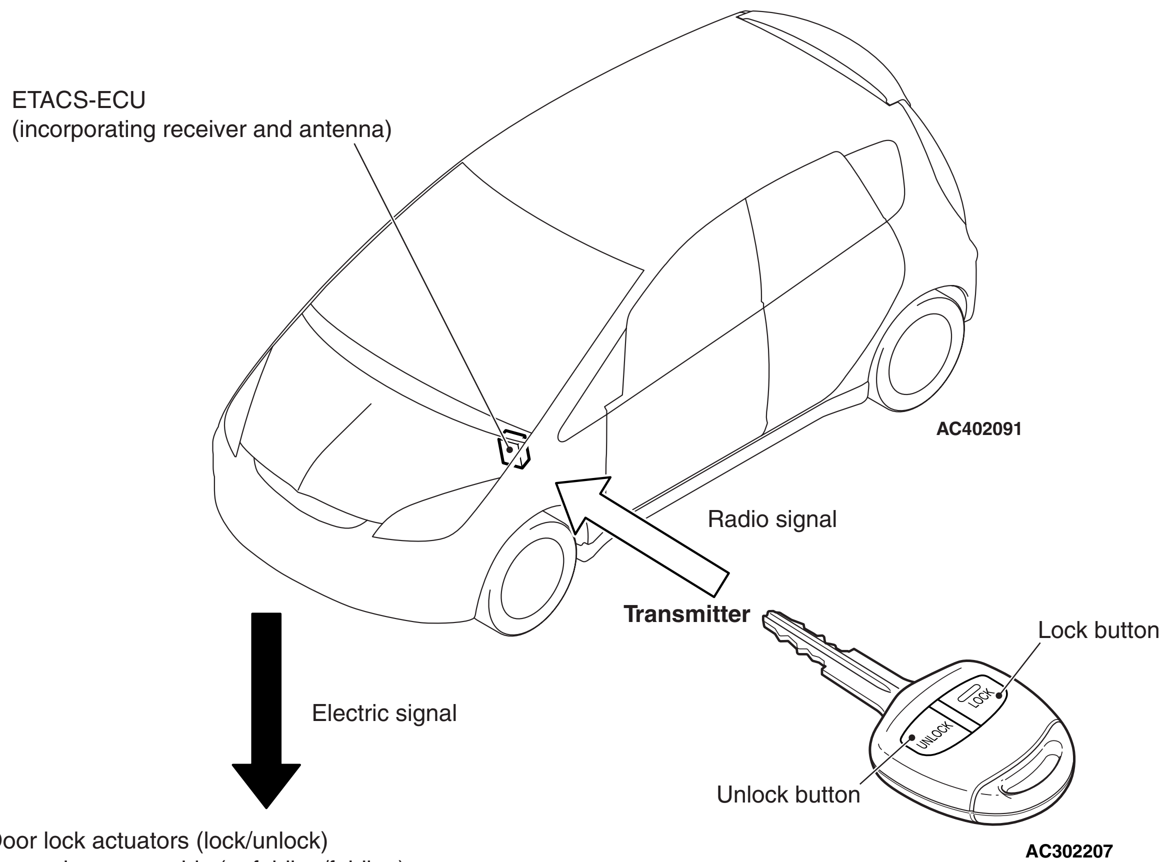
KEYLESS ENTRY SYSTEM

M2420010000727

The multimode keyless entry system is installed. There are the following features.

- Transmitter has two buttons (LOCK/UNLOCK).
- The ETACS-ECU is equipped with the integral receiver and receiving antenna.
- Up to 4 encrypted codes (4 transmitters) can be registered using M.U.T.-III.
- Answer-back function has been adopted.
- Using the LOCK/UNLOCK buttons, all doors (including tailgate) can be locked or unlocked and door mirrors can be retracted or opened.

CONSTRUCTION DIAGRAM



- Door lock actuators (lock/unlock)
- Door mirror assembly (unfolding/folding)
- The signal causes the room lamp to flash once when the doors are locked, or come on for 15 seconds when unlocked.
- The signal causes the hazard warning lamp to flash once when the doors are locked, or flash twice when unlocked.

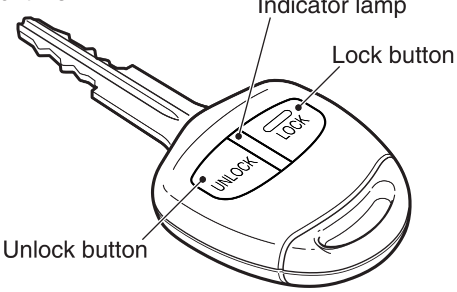
AC405318AC

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DESCRIPTION OF STRUCTURE AND OPERATION

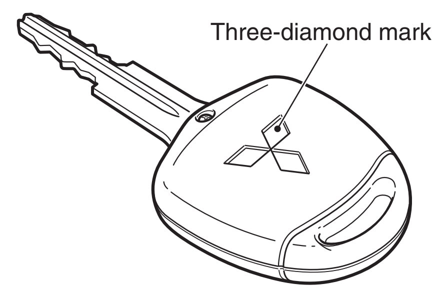
TRANSMITTER

<Front view>



AC302207

<Rear view>



AC309781
AC309891AC

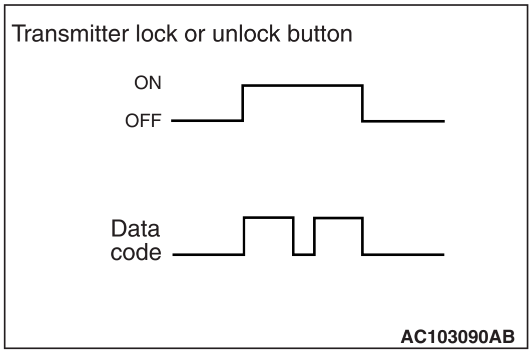
The transmitter is integrated into the master key.

- When either button is pressed, the transmitter emits a radio signal representing a specific ID code.
- There are two buttons on the transmitter; the lock button and the unlock button.
- An indicator lamp, which illuminates when signals are transmitted, is added on the key grip. This indicator lamp informs you of the signal transmission status and warns you of flat battery.
- A brilliant silver Three-diamond mark is stamped on the back side of the key grip to improve appearance.
- A signal transmission circuit (printed circuit) and a battery are housed in one case. The case is housed in the key grip, thus improving resistance to water ingress.
- A coin type battery, CR1616 is used in the transmitter.
- The transmitter button operation allows the system to operate as follows:

System operation	The transmitter is operated.
All doors (including the tailgate) are locked.	Press the lock button once.
All doors (including the tailgate) are unlocked.	Press the unlock button once.
The door mirrors are retracted.	Press the lock button once to lock all doors (including the tailgate), and within 30 seconds press the lock button twice quickly.
The door mirrors return to the unfold position.	Press the unlock button once to unlock all doors, and within 30 seconds press the unlock button twice quickly.

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ENCRYPTED CODE



The figure shows the codes transmitted from the transmitter. Every time the button is pressed, the data code is transmitted twice. The encrypted code for user identification is a combination of 0 and 1, and more than 1 million different combinations are available. In addition to the encrypted code, the data code contains a rolling code that changes at each transmission, protecting transmission codes from theft by coping.

ETACS-ECU (RECEIVER)

- The ETACS-ECU incorporates a receiver with an antenna. The receiver compares the code sent through the antenna from the transmitter with the code retained in the receiver.
- The ETACS-ECU sends a signal only when those two codes correspond and the rolling code is judged correct.
- All of those output signals are processed internally in the ETACS-ECU.
- A maximum of four encrypted code (4 transmitters) can be registered by connecting the M.U.T.-III to the diagnosis connector.

FUNCTION FOR CONFIRMING ETACS-ECU (RECEIVER) OUTPUT AND OPERATION

When the ETACS-ECU (receiver) sends a signal to the door lock actuators and tailgate lock actuator, the hazard warning lamp and room lamp illuminate, indicating that the keyless entry system is activated. The hazard warning lamp answerback can be switched between "lock/unlock yes", "lock only yes", "unlock only yes" and "none" with SWS configuration function*. This feature is factory preset (default) to "lock/unlock yes".
Using the adjustment function*, the number of hazard warning lamp answerback flashing can be altered. As an initial setting at factory, the hazard warning lamp answerback flashes once when locked and twice when unlocked.

NOTE: Using a customisation feature, the hazard warning lamp answerback function can be changed. Refer to GROUP 54B, Customise Function P.54B-25.

Item	Operation	
	Doors and tailgate locked	**Doors and tailgate unlocked**
ETACS-ECU (receiver)	Sends lock signal	Sends unlock signal
Hazard warning lamp	Flashes once (Initial setting)	Flashes twice (Initial setting)
	Flashes twice	Flashes once
Room lamp	Flashes once	Illuminates for 15 seconds

KEYLESS ENTRY TIMER LOCK TIME

If any door (including the tailgate) is not opened or closed within 30 seconds after the doors (including the tailgate) are unlocked by the keyless entry system, ETACS-ECU automatically sends the door lock signal to lock the doors (including the tailgate). This function prevents the doors (including the tailgate) from being unlocked unexpectedly by operation errors. Using a customisation feature*, the timer lock delay can be changed to 30, 60, 120, or 180 seconds. The initial setting at factory is 30 seconds.

*NOTE: *: Using a customisation feature, the timer lock delay can be changed. Refer to GROUP 54B, Customise Function P.54B-25.*

OPERATION INHIBITION CONDITIONS

The operation of the keyless entry system is inhibited in the following conditions.

- When the ignition key is inserted into the ignition switch.
- When either door (including the tailgate) is open (the door switch: ON). (including door ajar)

POWER WINDOW

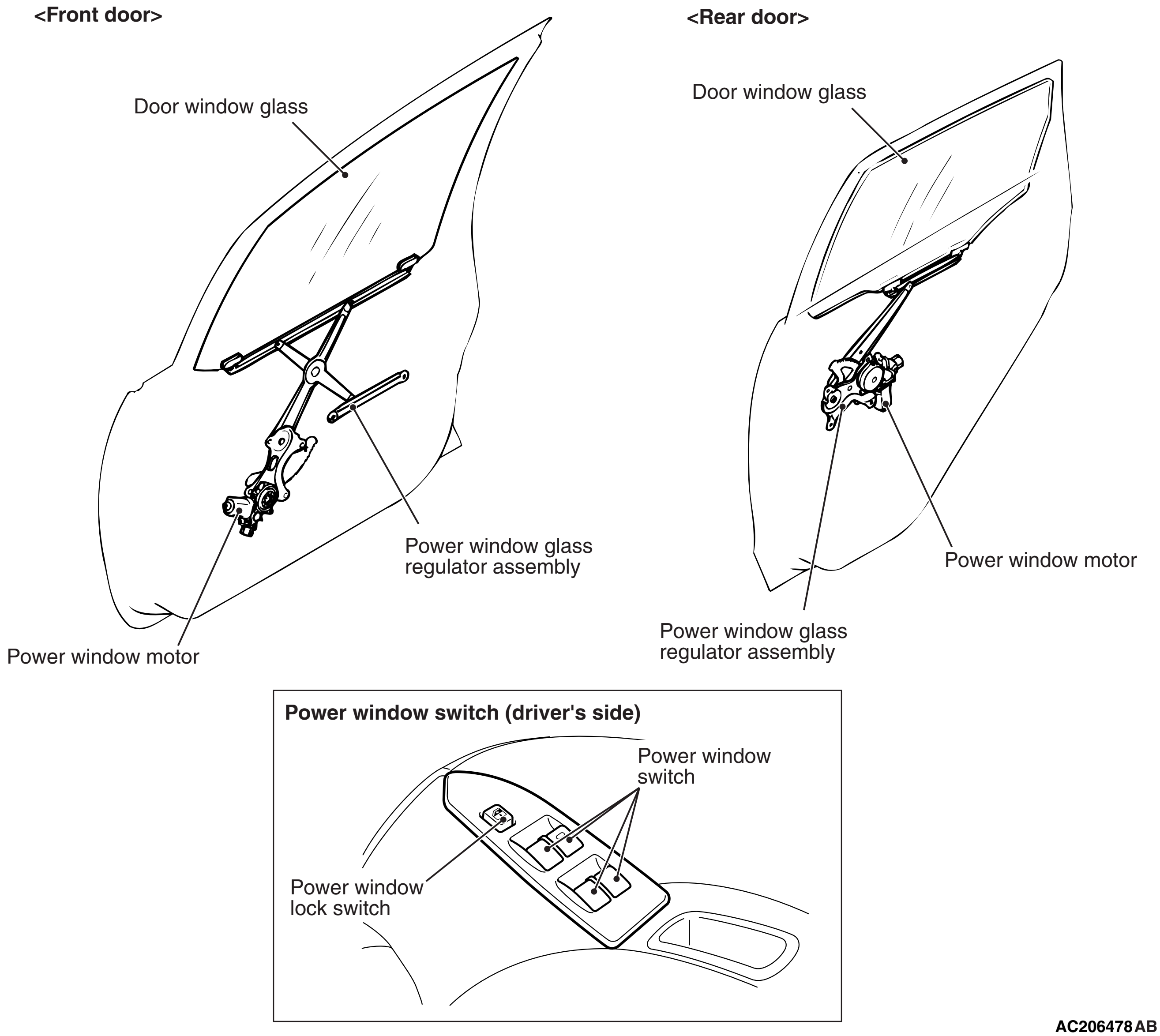
M2420022000100

The power window has the following features.

- The power window timer function is adopted.
- The power window lock switch is adopted.

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CONSTRUCTION DIAGRAM



DESCRIPTION OF STRUCTURE AND OPERATION

POWER WINDOW SWITCH

- The power window switch employs the push-pull operation method to improve safety. To open a door window glass, press in the switch knob, and to close, pull it up.
- The one-touch mechanism is adopted to the driver's power window switch to fully open driver’s door window glass in a single operation.

POWER WINDOW TIMER FUNCTION

The power window has a timer function which allows the window glass to be closed or opened for 30 seconds after the ignition switch is turned OFF. (During the timer operation, if the driver's door or front passenger's door is opened, the timer is expired at the moment.)

POWER WINDOW LOCK SWITCH

The driver's door power window switch is equipped with the lock switch. This switch inhibits the opening/closing operation of the door window glass by the front passenger's power window switch or rear power window switches.

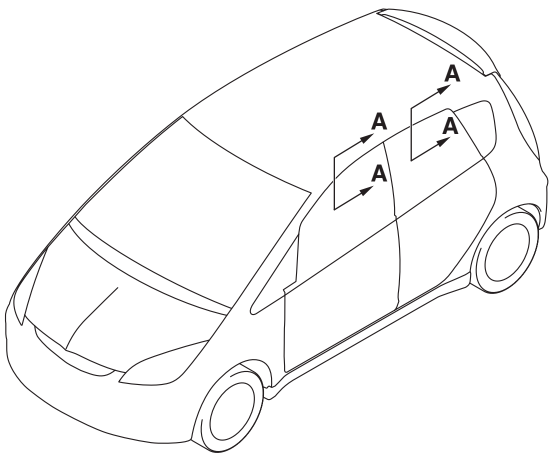
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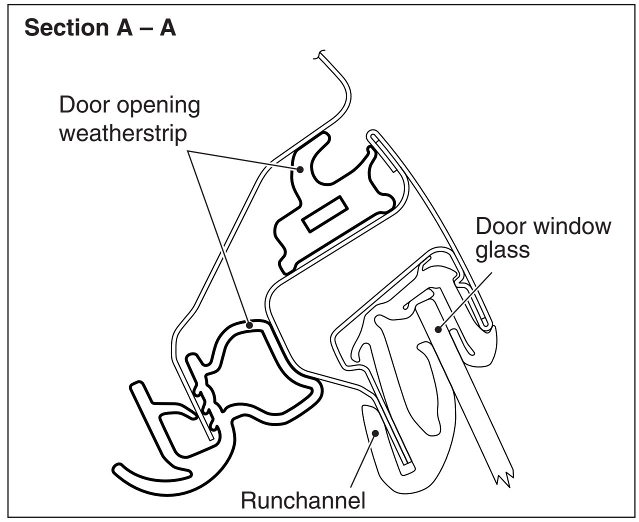
WEATHERSTRIP

M2420020000223

Double weather strips have been installed along the perimeter of the door window, improving sound-proof and water-proof performances.

CONSTRUCTION DIAGRAM





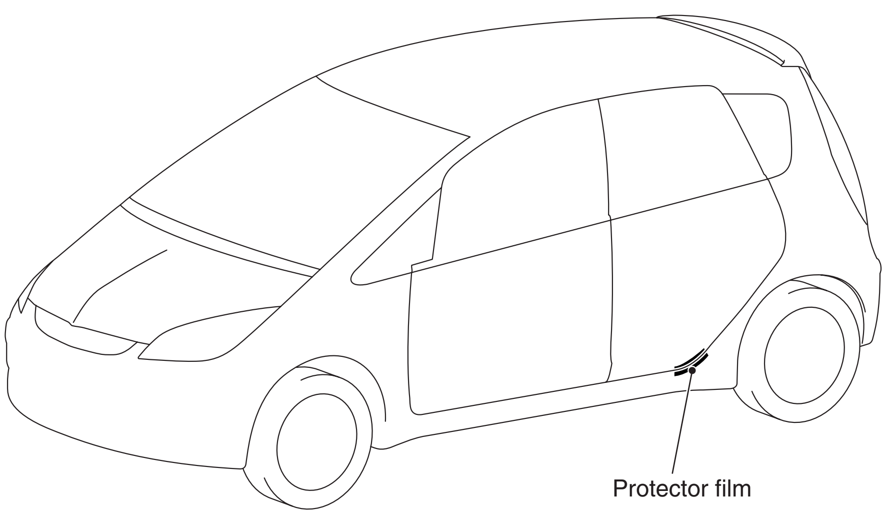
AC510034 AB

PROTECTOR FILM

M2420021000185

A protector film has been added on the lower part of the side sill to protect it against the chipping stones and prevent the paint peel <Vehicles without side air dam>.

CONSTRUCTION DIAGRAM



AC510033 AB

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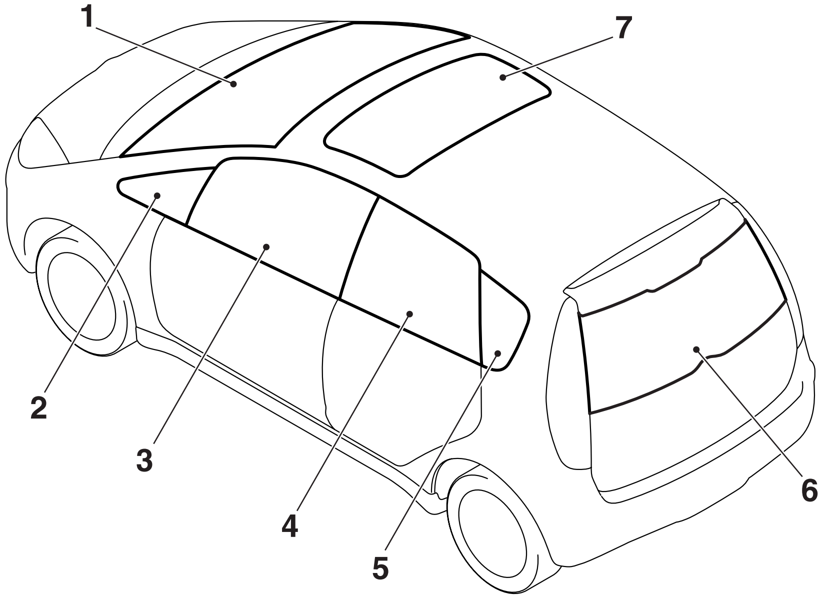
WINDOW GLASS

M2420015000669

Laminated glass is used for the windshield and reinforced glass for the other windows. The window glasses have the following features.

- UV & heat protect glass has been used for the windshield as standard.
- The ultraviolet (UV) shield glasses have been used for the front door window glasses and rear door window glasses as standard.
- Privacy glasses have been used for rear door window glasses, quarter window glasses, and tailgate window glass as an option.

VISIBLE RAY TRANSMISSIVITY RATE FOR WINDOW GLASS



AC401290 AB

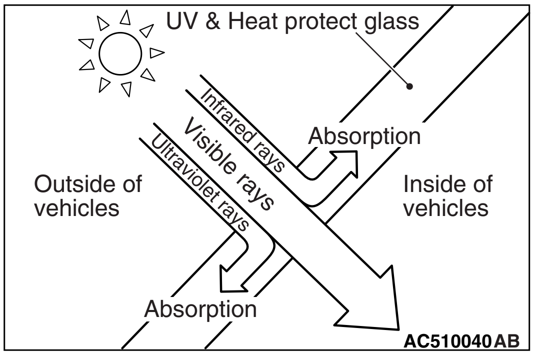
No.	Name	Type	Thickness (mm)	Colour	Visible ray transmissivity rate (%)
1	Windshield	Laminated glass (UV & Heat protect glass)	4.4	Green	74.4
2	Delta window glass	Tempered glass	2.8	Green	83
3	Front door window glass		3.1	Green (UV shield glass)	75
4	Rear door window glass		3.1	Green (UV shield glass)	75
				Dark grey (privacy glass)	25
5	Quarter window glass		2.8	Green	83
				Dark grey (privacy glass)	28
6	Tailgate window glass		3.1	Green	83
				Dark grey (privacy glass)	25
7	Sunroof lid glass		4.0	Dark grey	10

NOTE: The visible ray transmissivity rate (%) is a reference value.

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STRUCTURAL DESCRIPTION

UV & HEAT PROTECT GLASS



The glass absorbs infrared rays with a certain wavelength in addition to UV (ultra violet) rays. Medium infrared rays with wavelengths of 1500 nm* or more can be absorbed almost completely by containing IR (infrared) cutting agent in the intermediate layer of laminated glass. We tend to feel hottest as exposed to these medium infrared rays. This reduces a burning or searing pain which we feel when you are seated in front seat.

*NOTE: . * nm: stands for "nano-meter" 1 nm = one billionth m.*

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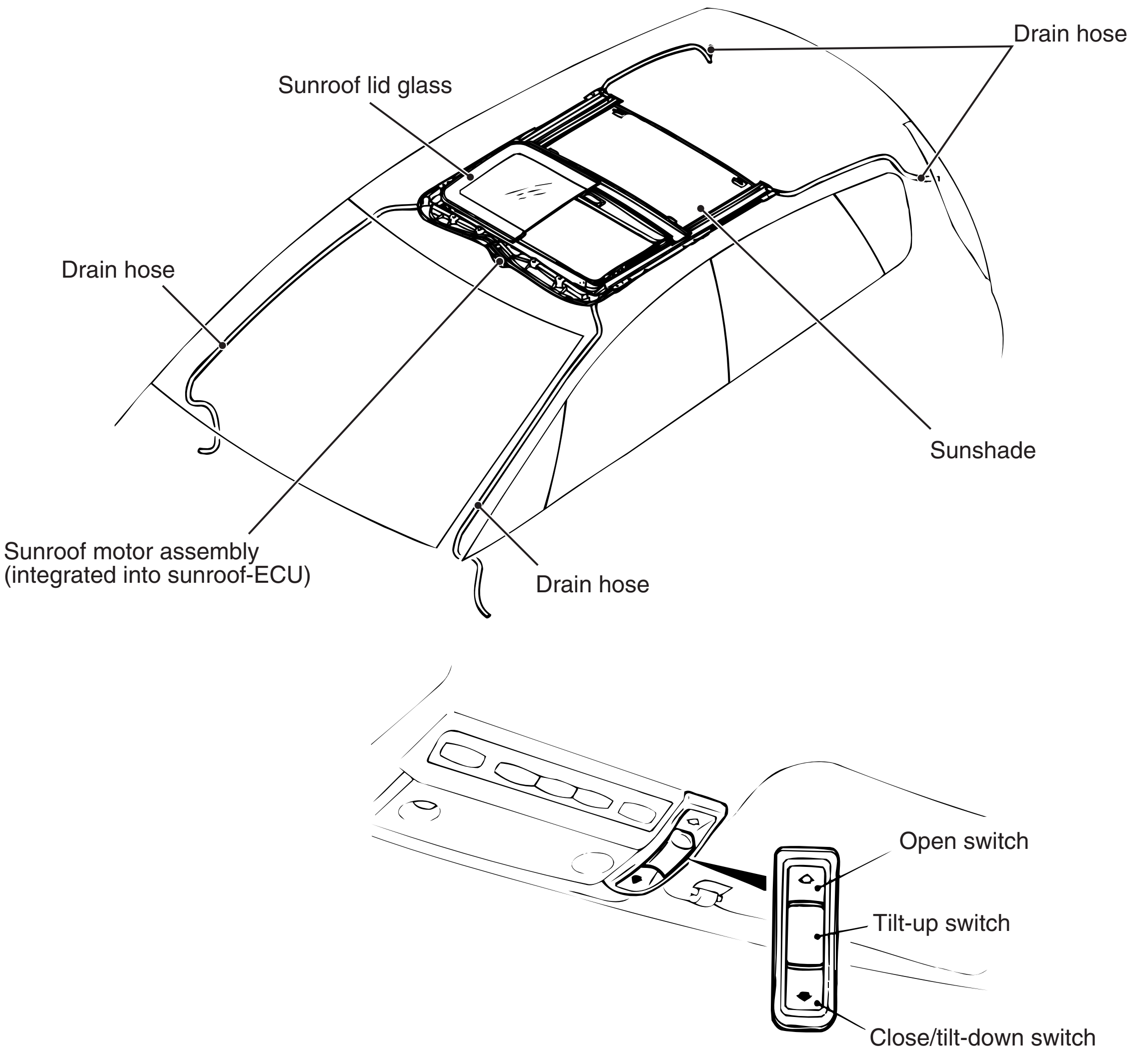
SUNROOF

M2420016000242

Electric sliding glass sunroof with tilt-up mechanism has been adopted (Option). This sunroof features the following characteristics.

- Lightweight sunroof have been adopted.
- The sunroof tilts up for approx. 30mm to improve ventilation performance.
- The integrated switch allows for all slide open/close, tilt up/down and stop operations.
- If external force is applied during slide closing or tilt down operations that obstructs operations, then the sunroof lid glass will stop according to the jam prevention mechanism.

CONSTRUCTION DIAGRAM



AC206680AB

DESCRIPTION OF STRUCTURE AND OPERATION

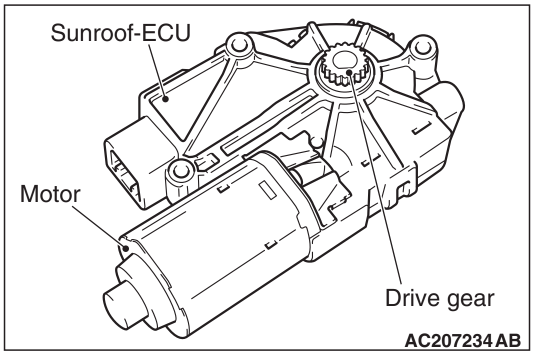
SUNROOF FUNCTION

The sunroof may operate in the way similar to the jam prevention function of the sunroof due to some driving conditions or environment. In the case, move the sunroof to fully closed position as described below.

1. Turn ON and hold the sunroof switch until the sunroof moves in the desired direction and stops.
2. If the sunroof does not move to the fully closed position by the operation in Step 1 and the jam prevention function operates again, release the sunroof switch. Then within the elapse of 3 seconds, turn ON and hold it again until the sunroof stops at the fully closed position.

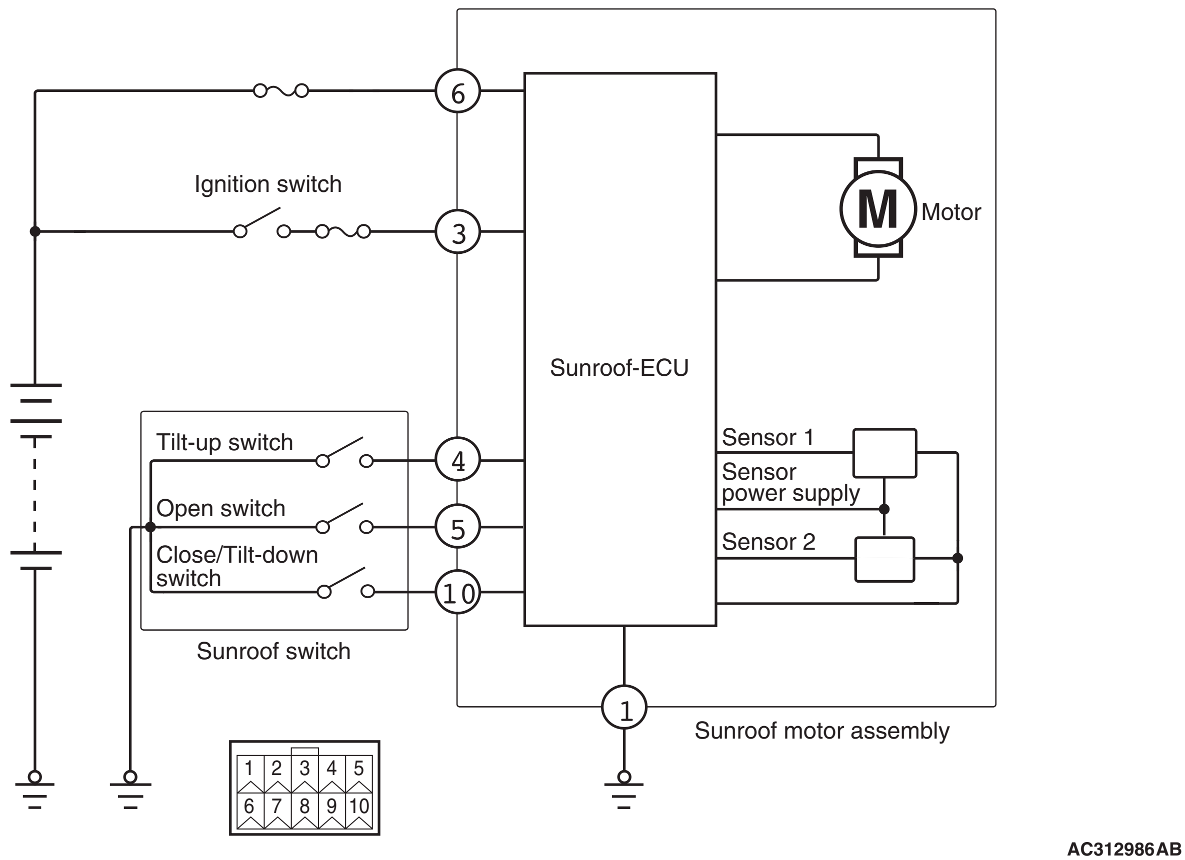
If the sunroof does not operate correctly even after step 2 is performed 4 times, refer to the Workshop Manual.

SUNROOF MOTOR ASSEMBLY



The sunroof motor assembly, which consists of the motor body, drive gear, and sunroof-ECU, is installed in front of the housing.

SUNROOF-ECU



The sunroof-ECU incorporates a microcomputer and controls various motor operations based on the sunroof switch signals.

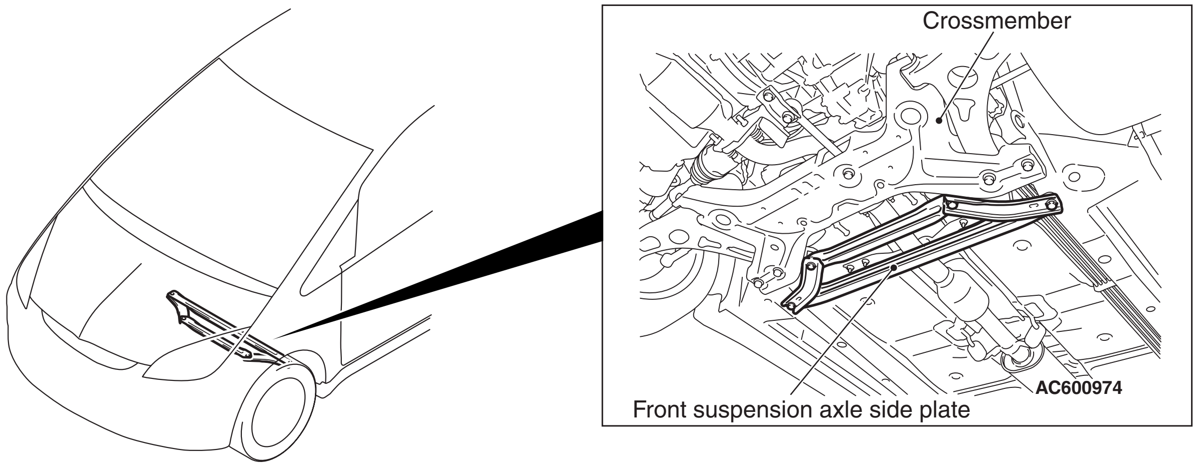
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LOOSE PANELS <4G1>

M2420000200128

CONSTRUCTION DIAGRAM

<COLT RALLIART Version-R>



AC601161 AB

The front suspension axle side plate has been adopted to improve crossmember installation rigidity.